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Meeting of Feb., 1918.

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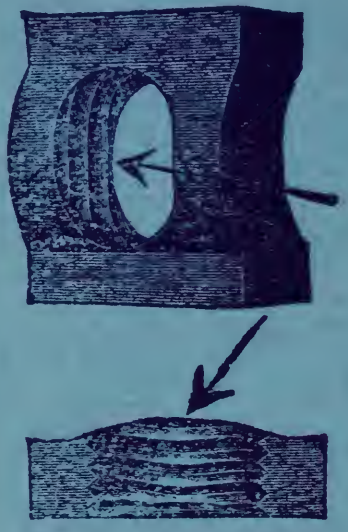

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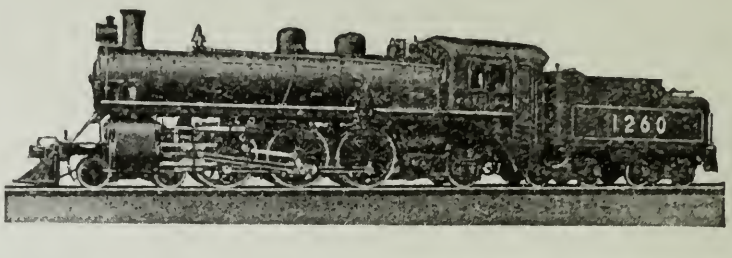

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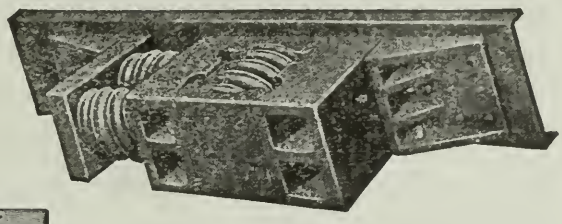

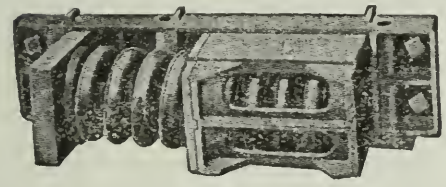

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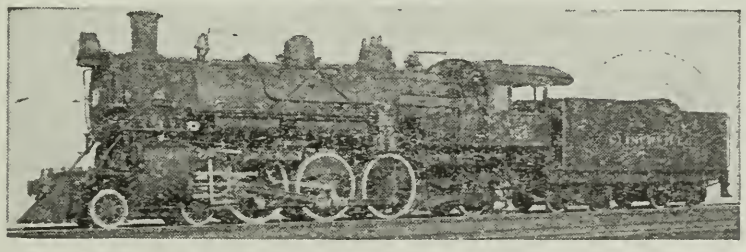

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PROCEEDINGS OF THE CANADIAN RAILWAY CLUB.

Windsor Hotel, Montreal,
February 12th, 1918.

Chairman (C. W. Van Buren):

Gentlemen, come to order please and we will start the meeting. The attendance cards have been distributed for you to sign and will be collected later on. I was not present at the last meeting, but I believe that most of the members here to-night were there, and we can therefore dispense with the reading of the minutes of that meeting, especially as they are being printed and will be sent to you later. The next order of business is the remarks of the President. The President is not here and the Vice-President has nothing to say, except that I wish to thank you for your attendance at the meeting to-night. The gathering is small, but is better than anticipated considering the weather conditions, war conditions and so on. The next order of business is the announcement of new members.

Secretary:

Mr. Chairman and members, we have the following applications for membership, which have already been passed upon by the Executive Committee.

New Members.

J. F. Faber, Electrical Engineer, Mount Royal Tunnel & Terminal Company, 411 Dorchester St. West, Montreal.

C. C. Labrie, Purchasing Agent (Can. Northern Rly., Montreal), 411 Dorchester St. West, Montreal.

C. W. Moore, Manager, Geo. F. Foss Machinery & Supply Co., 305 St. James St., Montreal.

G. P. Morgan, Ogdensburg Coal & Towing Company, 134 McCord St., Montreal.

C. P. Price, Electrical Superintendent, 411 Dorchester St. West, Montreal.

Chairman:

You have heard the names of the proposed new members. A motion will be in order.

Mr. T. McHattie:
I move they be accepted.

Mr. A. Allan:
I second that.

Chairman:
Moved by Mr. McHattie, seconded by Mr. Allan, that these applications be accepted. All in favor signify in the usual manner. Contrary, none.
Carried.

MEMBERS PRESENT.

C. W. Van Buren	T. C. Hudson	H. Payne
A. Allan	G. F. Hudson	R. D. Peverley
W. L. Barrow	W. C. Hunter	W. Prouse
S. Blumenthal	E. J. Kelly	W. H. Robb
L. A. Boucher	E. E. Lloyd	F. M. Rollo
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W. T. Hawes	J. E. Palme	Jas. Powell
J. Hendry	R. H. Parks	and others.
N. Holland	R. V. Patterson	

Chairman:
The next business is the reports of Standing Committees. We have the Entertainment Committee, who are dealing with the matter of the "Smoker," to be held on Feb. 22nd. I believe a report from the Chairman of that that committee is now due.

Secretary:
As far as the Chairman is concerned, he has asked me to speak for him. Mr. Purdy had to go to Winnipeg, and I do not think he is back yet. We have enlisted the services of two other gentlemen and the prospects for the concert are very promising. We instructed the printers to send out circulars to the members only, but fortunately or unfortunately, they also sent them to our advertisers, to librarians, and to editors

of mechanical journals, and I have several letters here I would like to read. I might say that we have secured very good talent and expect a very pleasant evening. I have received quite a number of responses from the United States. I might state that in other cases I have received the circular back again without any remarks and the ticket without any dollar.

Chairman:

In the Executive meeting to-night the matter of the death of the late Mr. J. S. N. Dougall was brought up. He has been a member of this club for many years and was a very fine gentleman. It was agreed by the Executive Committee (and I do not think this needs any ratification by this meeting) to draft a letter of sympathy and send it to the relatives.

The next order of business is what we came here for to-night, and is the paper of the evening by Mr. C. Gordon Mitchell, architect representing the Canadian Northern Railway, Montreal, on the subject of "Architecture and Building, as Applied to Railway Work."

"ARCHITECTURE AND BUILDING AS APPLIED TO RAILWAY WORK."

By Mr. C. Gordon Mitchell, Architect, representing Canadian Northern Railway, Montreal.

(To be read before the Canadian Railway Club, February 12th, 1918.)

The subject of my paper this evening is so large that it will be impossible to do more than touch the borders of so vast a field, and I shall try to do so in a manner to afford ample room for discussion on conclusion. As I am aware that most of you here present are laymen, so far as architecture in concerned, I will endeavor to treat the subject broadly and without detail.

Architecture and engineering, you are aware, are kindred professions, slightly overlapping at some points, and where the points do overlap, it is the rule of the wise in each profession to collaborate rather than to assume. A few architects also claim to be engineers and vice versa, but we cannot overlook the fact that there is so much to be learned in these professions that experience has proven its wisdom in dividing the labors of each, with the result of a greater efficiency in both.

That architecture is a science and art combined is gener-

ally admitted, and I submit that engineering is not wholly a science, for without imagination, the scientific knowledge of the engineer would not carry him very far on the road to success. Without imagination, architecture or engineering must become a hopeless failure, and in either profession, the man who is capable of reducing his dream to a practical, concrete issue, is the true architect or engineer.

Beyond a doubt, the history of a people is written in their architecture, and I presume that to some extent, the same may be said of their engineering also, and if this be true of both professions, then what a responsibility is ours, for we are the historians of our time, writing the true character of our people in letters of stone and iron upon the face of our country. The architecture of a people, then, becomes the concrete expression of a just equilibrium between mind and matter. A true reflex of the inhabitants of the globe is an open page written in tablets of stone, so that he that runs may read.

To narrow our subject down to a world that most concerns railroad men, still leaves us a large field upon which to operate, and perhaps it would be well for us to divide the field into three classes of buildings, viz.:—public, commercial and domestic.

The first is, for the most part, restricted to railway terminals and passenger stations. The second comprises the workshops, power stations, freight sheds and other warehouses, and the third, the homes of railroad employees: on this latter, all success or failure of a road depends. If we examine the homes, we need not see the balance sheet, and I submit that this is true of all employers and employees. Of course, there are exceptions, but as a general rule, a well-cared for and comfortable home bespeaks a higher intelligence, which is a necessary attribute to efficient service. In some of the most up-to-date and best managed business undertakings in the world, the home comfort of employees is considered such an important asset that the employers provide the homes, and provide better homes than could be rented from landlords, who would require a much higher interest on their invested capital than the employers in such cases demand.

Now let us consider the public buildings. The retrospective view is short to the time when there was not a comfortable, well-designed railroad station on the continent of America, and the principal reason of this condition is not far to seek, viz.:—lack of competition! If there be any doubt on this subject I would ask you to make a comparison between rival railway stations in most cities, and the same companies'

stations where there is no competition. Look at some of the older railroad passenger stations and tell me, have they one redeeming quality? The only one I know is that they are not fire-proof. Do they in any way fulfill the objects for which they were built? You answer, yes! and I agree, but I maintain they fall very far short of fulfilling what might have been accomplished had they been properly designed. Now, if from ignorance of the case, that might be excused, but it cannot be implied to railroad companies, for you will find that where there is keen competition the passenger station has generally been designed by a competent architect, collaborating with the officials of different departments, so as to include all requisites necessary to the comfort of the public, efficiency of the employees and good administration, thereby contributing to the success of the railroad company. If this be the case, at competitive points, does it appear good judgment, sound logic or wise business, that at all others anything is good enough which will protect the baggage, express and passengers from the storm. Will an hour spent in a poorly-lighted, badly-ventilated and insufficiently heated waiting room tend to make the public speak highly of any public service? The public are the patrons and it is they who should be considered, therefore, I contend, that much care and study should be devoted to the designing and building of even the smallest station, so that the very best results may be obtained from the money at the disposal of the architect. I say architect advisedly, because I am convinced that no other profession is capable of designing a building which will fulfil all the conditions of cost, requirements, etc., and then only if he has had good judgment and experience combined.

This is a commercial age, and cost, therefore, looms largely on the horizon of every undertaking, and it is by no means absent in building enterprises. Inferior designers knowing their inefficiency, will often attempt to excuse the shortcomings in their work on the ground of cost. No weaker excuse could be attempted. Cost and good, bad or indifferent design have almost nothing in common. In some cases, the lavish manner in which money has been mis-spent is only worthy of a greater and more just condemnation. The greater the cost, the more horrible the production, but this unfortunately does not often occur, but as an example we have a Senator's house on Fifth Avenue, New York, where money was squandered with both hands, to produce at once, the most ghastly incongruity and vulgarity I have ever seen in architectural form. There is hardly a square foot of the exterior surface that has

not been smothered with every known and unknown style of decoration. No rest, no repose, no modesty, it fairly shrieks of dollars, from the pavement line to the highest pinacle, truly a triumph of democracy in its most blatant form.

Not many railroad architects suffer from the burden of having too much money to spend on their buildings, and he is wise who knows that the foundations are well designed before thinking of decoration, but unfortunately, the public demand show at the expense of construction. The true spirit of architecture is sound construction, and if the proportions are well designed, the results will be pleasing in spite of the lack of decoration. Are we to expect good proportion from a designer who is ignorant of the fine orders of architecture?—oftentimes totally so. The intimate knowledge of these is the cradle of all good proportion, and to obtain this knowledge requires not only inborn aptitude, but years of study. If then, my statements are correct, it is little wonder we have so many monstrosities in railway buildings. Where does the bame lie for so pitiable a state of affairs? It is not the chief engineer of the road who is responsible, even if the work of designing the building falls directly to his department, I suspect the finance department is generally the culprit, and "to cut down expense," the work of designing important buildings is often delegated to one of the junior engineers, the prevailing idea being that anyone can design a building. The most simple and inexpensive building may be made adequate and beautiful in its simplicity if designed by a competent designer and carried into effect by a properly qualified builder, the two collaborating in their work, and as to cost, the sure method of increasing the eventual capital cost is to employ unqualified designers, for in a very short period of time the maintenance of badly designed buildings will eat up very much more than the original outlay of paying for good design. If this is not the case, why, let me ask you, do the shrewdest business men throughout the world employ architects to design and supervise the erection of their buildings? Some railroads have adopted a middle course—that of employing architectural draughtsmen, generally the cheapest men on the market. Here again I question the wisdom, and from personal experience I have found that the cheap assistants are dear at any price.

I would now call your attention to standardizing buildings. Standardization at first glance appears very attractive from the economical viewpoint, but does it bear close scrutiny? Firstly, standardizing suggests similar conditions and demands a unit system of designing. Can a unit system be ap-

plied successfully throughout? I am of the opinion that it can only be applied partially, even to what might appear stereotyped buildings of the commercial class, e. g. workshops, warehouses and freightsheds.

The chief objections, in my opinion, to standardized buildings are as follows:—In every case where a building is necessary, the conditions are different. In attempting to make the standard suit the varying conditions, it will mostly be found that so many variations occur that little of the standard plan remains, and possibly better results will be obtained by ignoring it entirely. For example, will the requirements of a round house at Prince Rupert pe exactly similar to those at, say, Quebec, presuming that the engineering work executed at each point is of the same character? If this be the case, can a standard round house be erected at every requisite point from Halifax to the Pacific Coast, and give full satisfaction in each case, by merely reducing or adding to the number of units necessary? The climatic conditions differ all the way through, and this fact alone will to some extent modify the details of a standard plan. The best materials to use for construction and their cost must differ in different localities, so that in some cases it might be wise to use stone, in others brick or reinforced concrete, or any two or perhaps all three of these materials. If this be true we shall want not one, but perhaps three standard round house plans to begin with, and then, how about the units. Can a standard be adopted the unit of which can either accommodate a hundred workmen or by being doubled, accommodate two hundred and still bear equal relation in each case? I should question it. I do not argue against a typical layout of plans for certain kinds of buildings. The conditions being similar, the general layout of a plan may be typical with successful results, but so soon as the conditions change to any considerable extent I maintain that a standardized building plan will have to be changed to such an extent that it could scarcely be recognized by its own mother. As regards the changed conditions, these can only be fully appreciated and proyided for by trained men. As an instance, the changed points of the compass, upon which so much will depend, how much consideration is as a rule given to this condition, which is of the greatest importance, and should never be left unconsidered in designing buildings.

Where comes in the great advantage of standardization relative to building? If it is merely to save the cost of designing a new, or it may be, typical plan to suit all the new conditions, then it appears to me a falacy, and I am of the opinion

that in each case it is better to make the "pnnishment suit the crime." If, for instance, the master mechanic or road master at Halifax could wire to Montreal or Toronto head office thus: "No. 2 pier of round house has failed and that part of the building adjoining said pier has had to be abandoned; please send new pier at once," and provided there were standard piers in stock, the building might be quickly restored, but failing this I do not quite see the great advantage. In the case of passenger stations where the amount and kind of business done, the size, position, shape and levels of the ground differ in each case, a general type of station may with good results be adopted, but I cannot reconcile a standard plan with satisfactory results. Standardization may be best applied to things that are required by the hundreds to fulfil the exactly same requirements and conditions. Manufacturing by hundreds or thousands is much less costly per unit than producing by units as when required, but the cases are not parallel: in buildings the case is rather reversed. We build to suit the exact necessities of a different requirement each time, and I may add, that after thirty years experience in active architecture and building, I have never yet been able to use the same or similar types for the same or similar purpposes, and governed by similar conditions, but always with differences, sufficient to call for a new plan. I have only once worked as an architect's assistant in an office where standard drawings were used, and I am positive my employer did about the worst work I have ever touched. His idea was to save cost in production of drawings, but the time spent in trying to adapt these standards to the new work was a very questionable piece of financing, a very degrading form of architectural practice, and resolved itself into a continual stream of new assistants through the office, until he, at last, reached the class of man who had no interest in his profession beyond the pay cheque at the end of the month.

Standardization of building materials has often been attempted but cannot be strictly adhered to. Let us take one example which is very popular with large companies, viz.: standard paint. I think probably more money is made by manufacturers out of their standardized paints than any other they produce.

Perhaps no building material is more faked than paint. To the average person all paint is just "paint." It is a commodity very largely advertised. Advertising is expensive, but it pays when the scale is large enough, and naturally it is the purchaser of the largely advertised paint who does the paying.

He pays in the quality of the material because he is ignorant of what he is buying. Companies, on the other hand, often have analysis of the standard paint they use, and upon this analysis, the supply contract is based. These contracts get renewed from time to time, the purchasing agent has long forgotten the analysis exists, and in many cases, the manufacturer also. It would be well in all cases where standard paints are used to have a periodical analysis made, so as to be sure the manufacturer or some of his employees has not taken it upon themselves to slightly modify the standard.

In conclusion, gentlemen, I thank you for the courteous attention you have given to the reading of this paper. I hope that it has been of some interest to some of you, although I suspect that in these days when all of us have to become experts in our work, we have all too little time for the study of other than our own professions.

Chairman:

I will only ask that you speak on this paper as freely as the writer of the paper has written it. There is a great deal of interest attached to this subject, and while I have not had an opportunity to read it until I followed the speaker, I think there is a field here for a very nice debate. We must have a number of shopmen, roundhouse men, station masters, or others here to-night who can either verify or disprove some of the remarks the speaker has made.

Mr. A. Crumpton:

It is very refreshing to hear a paper read in which the author has the courage to attack standardization—the one thing all railway men are aiming at, and upon the advantages of which I thought all agreed.

What the author says may apply to the larger stations and office buildings. On the Grand Trunk it is the practice to build and keep in stock at central points watchmen's shanties, section tool houses and similar small buildings which, on requisition, are shipped on flat cars.

Small stations and freight sheds are built to standard plans, dimension material being stocked, and it is found in the field that much time is saved in the erection of such buildings by this method. It is needless to say that it is more economical.

Before the meeting is over I may have something more to say on the subject of standards, it being one in which we are all vitally interested.

Chairman:

I know that the road men and mechanical men have always been disposed to adopt standards, but the writer has expressed himself very plainly on this question, and there is one point on which I agree with him—if we stick to standards we are not going to progress.

Mr. C. G. Mitchell:

Just to give you an example, gentlemen, of my opinion of standards for buildings—I am so firm on this subject that I would not allow myself to be convinced that standards could ever be successfully applied to buildings. Of course, if you are going to make a tool chest or similar things that are made out of reinforced concrete, I would certainly use a standard, as they are all for the same purpose and it does not matter whether they face east, west, north or south. When I was on the Erie Railroad our chief engineer was one of the best engineers in America. He had just returned from a trip to Europe and got out in his private car and made a trip over the road. When he got back he came into my office and said: "What do you think you are doing out at ——? Do you think we engaged you to build gentlemens' palaces? This will never do. You are spending too much money." I said, "Alright, what are you comparing it with?" and he replied, "The New York Central. They build much cheaper than this." The New York Central buildings he referred to were not designed by an architectural designer, but probably by one of the junior engineers or the office boy about fifty years previous, and that had become their standard. When you come to standardize buildings you must not forget that conditions are always changing. About the New York Central, I went to their architect to find out how much the buildings referred to had cost. He had not the figures and could not tell me the cost per foot, but he gave me plans and particulars of three of his stations, so that I could measure them up and price them myself. When I had figured them all out and compared the cubical content cost with what I was designing, I found mine were 1⅛ cents cheaper than the buildings made to New York Central standards.

Secretary:

Speaking of the New York Central, and in going over the different lines, while some of their stations are nice to look at, it seems to me they involved money which could have been spent, especially at smaller stations, in a way that would bring

more benefit, and one of the standards I am thinking about is the use of different materials, such as paint. In regard to the use of different materials in different localities, I agree with the speaker that you cannot use the same material in every locality.

Mr. Thos. McHattie:

Speaking about the use of standards: from what I know of the practice on the Grand Trunk, we began using standards in roundhouses about 22 years ago. We started in on the height of roundhouses and to build them of different dimensions or of a different radius to accommodate the different engines, but we kept pretty close to standards in the make up. Of course, 22 years ago we built smaller roundhouses and they answered our requirements; then the size of locomotives increased and we had to make the pits longer, but we kept to certain things, and do the same to-day, as there are such parts as castings for the door posts and other parts which can be made economically and shipped from one of the main shops to the point desired. We have carried this out pretty closely. Of course some of the roundhouses have been made of reinforced concrete and some of brick.

Mr. C. G. Mitchell:

They used a typical plan but you could not call it a standard plan.

Mr. T. McHattie:

Well, yes, it was a typical plan.

Mr. C. G. Mitchell:

I agree with you.

Mr. T. McHattie:

We did that about 22 years ago. At that time all our roundhouses were of a different design and construction, and we started in to make the same design and have been following it pretty closely ever since. You can call it a typical or a standard plan. We call it a standard.

Mr. A. Crumpton:

Mr. Mitchell refers to tool houses as tool chests. However, standardization has been applied on some railways to a majority of their buildings. At the moment, I recall a standard reinforced concrete composite station consisting of wait-

ing room, office and freight shed, about 20 ft. by 50 ft., which the Wabash used in small towns. The cost was about $1.45 per sq. ft.

Mr. C. G. Mitchell:

I am working on a committee dealing with after-the-war conditions in Canada. I know Canada pretty well, perhaps a lot better than some of you fellows who were born here. One of the things that must strike a man who has seen Europe and also seen Canada, is this: that if you had travelled through the northwest at the time when there was not a foot of barbed wire fencing, in this country, the thing that struck you when you came to a farm house was that all the buildings had been designed solely for utility. I believe that in every man there is a dormant sense of the beautiful. He likes music, color or form; at least there is some sense of the aesthetic in him. The government is going to do wonderful things for the returned soldier, but I hope they will not try to adopt a standard cement house for him to live in, because to me it would be just about the same as putting him in a jail. Let us provide a comfortable and also a beautiful house for him, so that home will be a joy to himself and his family. There is only one place for concrete in the architectural mind, and that is below the ground, and where it cannot be seen. I do not see why railway stations should be made the ugliest things on earth. I will give credit to the Canadian Pacific Railway, which I believe to be the first railway company on this side of the Atlantic to have done something for the aesthetic and do not primarily think of the last dollar they can screw out of the public. At some of their stations they have the most beautiful gardens. It is horrible to think of putting human beings in a station that is not fit in which to tie up horses. There is no necessity for it, and if you will go to any point where there is competition you will not find the reinforced concrete station, as the railway manager is not such an ass as to build an ugly thing at any point where there is competition, but when it comes to the place where there is no competition it is just the reverse. I know from experience that they use a junior engineer or a boy in the engineering office to design the small station, and he just designs a box and it is planted down and called a railway station. That is not what we want or require. If you turn to the architecture of the older civilization you will find that they always wanted something beautiful to look upon, and for the most part got it They would not make steam engines or telephones but they were highly civilized,

and, for example, if you measured up a simple flight of steps leading to a building you would find it built true to the eye, and that it has never moved in a thousand years. Here you have got something that is true architecture, and it was arrived at by knowledge.

A Member:

I must take exception to the statement of the speaker that concrete should be kept under ground where it cannot be seen, and would like to ask him how he would build roundhouses without using concrete or some material equally substantial, also how would he beautify them. These places are built with a special object in view.

Mr. C. G. Mitchell:

Architecture does not depend upon rich mouldings or carvings. Many of the most beautiful buildings I have seen had little or no carving at all. You must remember that all architectural forms are designed in proportion to give pleasure through their beauty; therefore, in the matter of, let us say, moulding, if you have a flat space, such as a panel and put a piece of decoration on one side of it and a piece on the other, the eye is attracted by the beautiful, because the rich curves of that moulding stand out in contrast to the flat space upon which the eye rests. Take the early Victorian Age of architecture—I recall when I went to London the first time, I said to my brother, "Is this what you call the most beautiful city on earth?" It was disappointing, because largely the architecture had been produced by men who had little or no sense of the beautiful, but London also contains some of the most beautiful buildings in the whole world. A roundhouse can be made beautiful if properly proportioned by say putting a cornice on it at a proper height and perhaps an architrave line, with the brick to form a frieze which will give it the desired character; then the windows should be properly designed, the height being according to the width, and in dividing the window-frame architecturally it can be divided in a number of ways to give that window an entirely different aspect and distinctive character. This is done in dozens of architects' offices every day. The whole design is first put on paper and you then begin to study every part in detail, windows, doors, etc.

In engineering it is of course necessary to have concrete, and we have some magnificent examples of bridges where the concrete is exposed, but I do not think there is an engineer in

this room who will have the courage to stand up and tell me that he did not have the greatest difficulty in presenting a beautiful surface on the concrete upon which the metal work stands. Some of you gentlemen have had some experience in this problem.

Mr. A. Crumpton:

With respect to bridge masonry, I can only say that we formerly used limestone or granite, adopting concrete later. I think any engineer will agree that for this class of work properly constructed concrete has many advantages. It is monolithic while the best stone masonry requires frequent repointing of the joints. The surface is smooth and ice does not readily adhere to it, and it costs less than stone masonry.

While I am in sympathy with some of the ideas expressed by the writer of this paper, I think he is inclined to be utopian. He is talking about the aesthetic design of railway buildings whilst most of use have, perforce, to deal with the economic design of such buildings.

In short, the railways while endeavoring not to neglect the aesthetic side of design, are required by the public to give maximum service at minimum cost, thus the question of economy becomes the important consideration.

Mr. C. G. Mitchell:

You are an engineer—I am an architect; so I must tell you what happens in our offices. Every day architects are required to sketch out these ideas for the buildings. Of course, money always enters into it and in most cases we have to do the job cheaply, generally too cheaply, and when called upon to design reinforced concrete, if there is something else that is a little cheaper, or even perhaps if it costs a little more provided it fulfills the requirements, we sometimes stretch the point and use it in preference to concrete for exposed work. There is no doubt that in ordinary cases there are other materials which will be more beautiful than reinforced concrete, and I will defy any contractor to build small jobs in reinforced concrete any cheaper than he can do it with brick, because of the cost of the forms. Unless there is a lot of concrete work there is no saving of money in it. Figure the cost of the forms, material and labor and then compare the cost with say, Laprairie plastic brick and good mortar for small jobs. If the latter materials are used you may produce a building that can be properly proportioned, good in its color, and interesting in its jointing, and which you may be justly

proud. You engineers go to a lot of trouble in trying to beautify your concrete and make it look like stone, and this in itself shows that you are not satisfied with it. A number of engineers in designing their work will make the pier of concrete and then encase it with stone or brick, and thus the working load is taken up by the reinforced concrete but it is beautified by another material. The reason is very simple. In the first place stone by its natural texture is more or less translucent so that there is a play of light, and one may cut it in different ways to get different plays of light. Another reason why masonry is more attractive than concrete is that there is no greater beauty in anything than is to be found in nature, and there is nothing in concrete that has not been mechanically produced by humanity. It is largely the personal element in work that is beautiful. If you look at old stone work and observe the magnificent effects obtained in the jointing, etc., you will note that it is the personal element that stands out and gives it added beauty and attraction, but you cannot get that beauty by pouring concrete into a hole or form.

Secretary:

I arrived in Montreal 36 years ago at Bonaventure Station, which was then only a number of wooden sheds, and I was very far from being impressed with the railway stations of this country. Since then the present station was built and was considered a palatial edifice in comparison with the old one, but yet leaves much to be desired.

Mr. Norman Holland:

The Secretary was speaking about conditions at Montreal 36 years ago. If I remember right, the station building in those days was not a thing of beauty or a "joy forever." When the speaker mentioned "standard" paint everybody looked at me. We are not guilty. We do not make paint, but we do make varnish. In the question of standard building specifications I can see there is a lot of room for discussion. On one side there is the typical plan, which can be adapted in different ways. On the other there is the "standard" plan, which is a totally different thing. It is a question of either elasticity or rigidity; that is where you are. During the past few years I have been trying to get away from standard varnish specifications, taking the ground that it was the biggest mistake, for the reason that you cannot under present war conditions hold any concern down to the standard and know

you are getting the best thing suitable for your purpose. Go to a reliable company, tell them what you want, what you expect it to do, then let them make it, and hold them responsible. The question of standard specifications for paints has been particularly brought to our attention since the war broke out. The prices of colors went out of sight, and it was impossible to live up to these standard specifications and continue the old prices, and it was therefore necessary that the various companies alter their formulaes. If the railway companies had simply said that they wanted a product which would do a certain thing and left it to a reliable manufacturer to furnish the material they would have got better value for their money. It is only since the war that this has been brought home to the railways, because the market has run away with itself. The question of standard specifications is such that many of the roads to-day will admit that they will have to change their practices or they are likely to "get stung." I am going to give you a Limerick to illustrate the point:

There was a man who loved the bees.
He always was their friend.
He even sat upon their hives—
But they stung him in the end.

Mr. A. E. Mimms:

On the railroad with which I have been associated during the past five years, the Union Pacific, they have gone into standards extensively, including roundhouses, bridges and locomotives. In 1904 they found it necessary, on account of having locomotives of many different types, to adopt standard locomotives, which were carefully designed by the Baldwin Locomotive Works and the mechanical engineers of the various roads making up the Union Pacific Lines. These standards were adopted and not changed until 1912, or eight years after. They then adopted modifications of their standard designs, which are still being used, and they are quite satisfactory. In regard to roundhouses they used standard 85 ft. houses, and have built these on every division; then they build a standard new house .In so far as beautifying a roundhouse is concerned, this is a hard proposition. I think it is more important to the man on the grund that the house should be built so he won't see the back end of a tank sticking out of the doors. When adopting a standard we would look far enough ahead. Standards are economical if they are adopted with a view to future development and changing conditions.

Mr. C. G. Mitchell:

You say you believe in standard plans provided the plans are changed to keep tune with the times ahead. You cannot make a standard roundhouse that would be suitable for locomotives three--quarters of the way across the continent unless the conditions were alike. You have admitted this standard should keep pace with the times. It is, therefore, not a standard plan. It is a typical plan. A standard plan is something that is hard and fast.

Mr. A. E. Mimes:

It was not my intention to infer that that plan should be changed to keep abreast of the times, but to look ahead of he times so as to overcome the necessity for changing the plan later on.

Mr. C. G. Mitchell:

If that plan has been made five years ago how is it going to affect the conditions existing to-day? Is it economy if you have a man who does a half day's work in a day and a half because the place in which he is engaged is not adapted to his work? Standards are alright where the conditions are exactly alike and where a large number of things can be produced which are similar, but as soon as the conditions begin to change then it is not economy at all. I remember a manufacturer in England telling me that an American had come to him fifteen years before and advised him to throw out all his machinery as a matter of economy and put in modern machines. He refused to do it, and afterwards found that the American was right and if he had followed his advice he would have been wealthy.

Chairman:

It is regrettable that there are not more engineers here tonight to quarrel with Mr. Mitchell.

Mr. S. Blumenthal:

The writer of the paper has mentioned the C. P. R. stations. It might be interesting to know that 90% of the stations are built according to standard plans, not necessarily one standard, but we have about 25 different types of standards to suit all conditions, and these can be used for all points, except the large centres. In speaking of concrete and the use of forms, the writer forgot to mention that there are pre-moulded concrete blocks. I have seen stations built of them that looked

pretty good. Of course there is one objection to the pre-moulded concrete blocks, and that is that they give the station a picture-house appearance, but that can be overcome by using different forms or by using pieces of stone in the moulds.

Mr. C. G. Mitchell:

You have heard that old saying, "There is no place like home." It is false. I can take you to some places, not in Canada, but on the other side, and if you had had two whiskies, you would never be able to find your home. The houses are so much alike that you have to get home by instinct. In regard to the Canadian Pacific Railway Stations, you have admitted that you have at least 20 standard plans to start with.

Mr. S. Blumenthal:

If you figure out the number of stations, four or five thousand, and divide it by twenty, you will get a large number of stations of each standard.

Mr. C. G. Mitchell:

And when you come to large cities you employ brains. Your concrete has been tried in bricks and blocks, and the manufacturers have half a dozen different imitations with different surfaces, by which method they attempt to conceal the fact that the material is only concrete. I was not criticising the C. P. R. stations. I was criticising the grounds surrounding the stations. If you get an ugly home in nice surroundings the average person will consider it a beautiful place. God never made anything that was ugly. You cannot criticise trees or flowers, and it was these that gave you the impression. No doubt a great many people passing along the Canadian Pacific notice only the surroundings, and the C. P. R. are to be congratulated in being wise enough to spend money in this way.

Mr. A. Crumpton:

Some of us are familiar with the Bank of Toronto buildings. There are a number in different cities and towns, and you will find these buildings are very much alike. I have noticed, however, that the large pillars seem to interfere with the light. It is a fact that in the large cities they are built of stone, but in the smaller places are built of concrete, and you can hardly tell one from the other.

Mr. C. G. Mitchell:

That is perfectly true. I have had people come into my office and look at a drawing and say it is just like some other building, but the only resemblance was that both buildings had windows in them. To the layman the two buildings would look alike because he does not have the knowledge. We can never train the human mind to appreciate things that are beautiful unless we surround the mind by that which is beautiful. You must not think that because a man lacks special knowledge or that because he works in overalls that he does not appreciate the blue sky and the trees. He may have been fitting a cotter pin in a crank at the shop and has done a good job and one of which he may be justly proud. I may look at it but I cannot appreciate that it is a good job simply because of my lack of special knowledge. If we educate the public by giving them something beautiful to look at perhaps in two or thre hundred years they will so understand and appreciate these things that they would not have an unsightly building in the town. We should study our plans and see that the buildings we put up are not monstrosities.

Mr. R. H. Park:

I have been much interested in this paper and in the discussion which followed. As a layman, I think the writer has had the best of the argument. I take pleasure in proposing a vote of thanks to Mr. Mitchell.

Secretary:

I have much pleasure in seconding that motion, and to thank Mr. Mitchell for taking us all through the land on the other side.

Chairman:

If you will allow the Chairman to act as referee—of course both architects and engineers are necessary in railway work, because, as I see it, at the small station where the train stops or only hesitates, the community is small, and the people are busy, and the standard type of station will probably meet all requirements, but when we come to the city we have to employ an architect and probably would have a horrible example of a station if we did not employ one. The engineer appears to be the trained man; the architect furnishes the imagination.

It has been moved by Mr. Parks, seconded by the Secretary, that a vote of thanks be extended to Mr. Mitchell for his

paper. It was most interesting and I think I will suspend judgment as to who wins.

Motion carried amidst applause.

Mr. C. G. Mitchell:

I thank you for your attention and consideration of this subject, which is somewhat foreign, but as you know the more we know in life the more we get out of it.

Chairman:

At our next meeting Mr. Battley, of the Grand Trunk, will give a paper on "Locomotive Repairs."

Coffee and sandwiches are being served in the room at the rear.

J. S. N. DOUGALL

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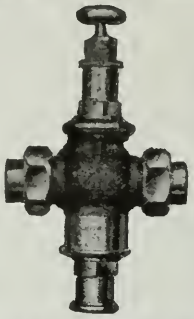

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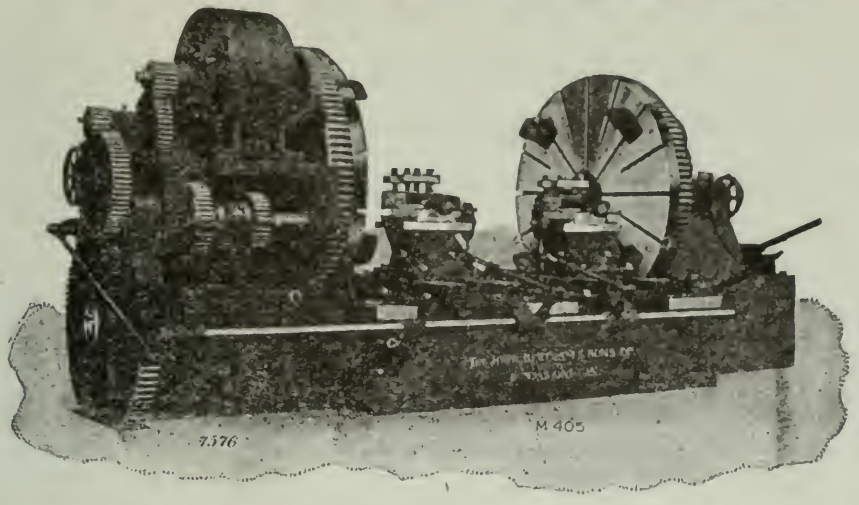

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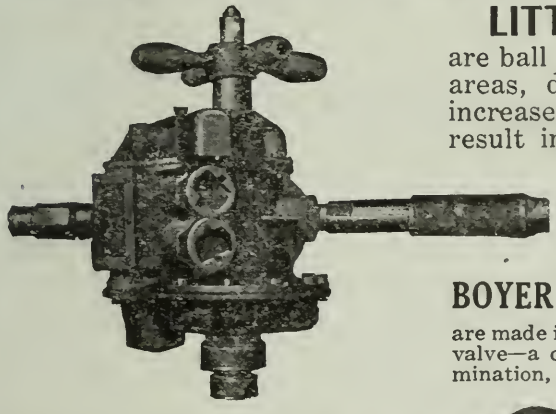

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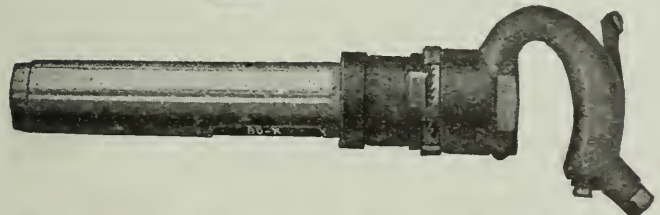

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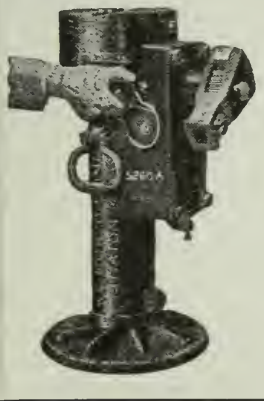

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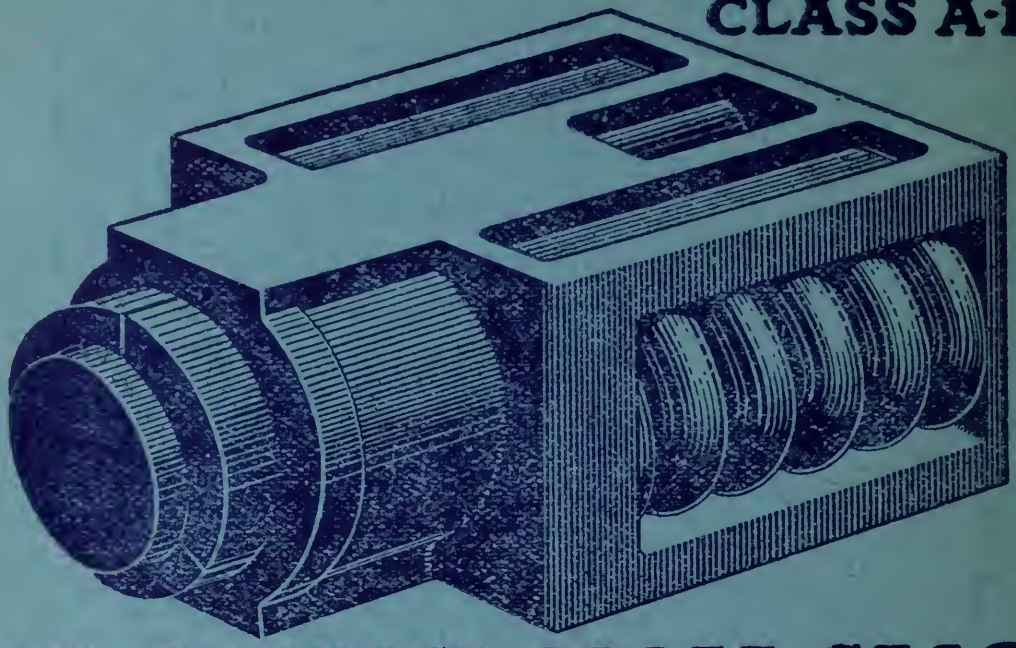

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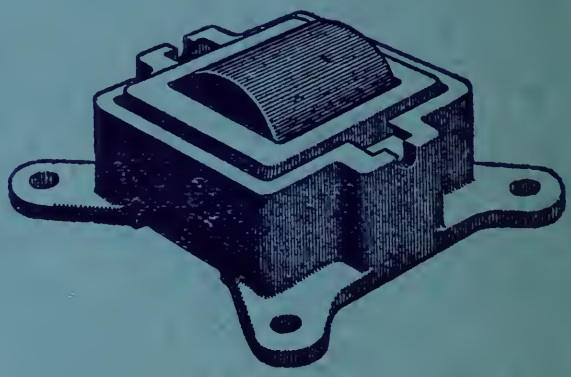

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